

**REMARKS**

In the Office Action, the Examiner objected to the title of the invention as not descriptive and requested a new title; objected to the specification as failing to teach or suggest the frequency controller as claimed in claims 2-4 and 6-7; objected to the specification as failing to enable claims 2-4 and 6-7; rejected claims 2-4 and 6-7 under 35 U.S.C. § 112, first paragraph; and rejected claims 1-12 under 35 U.S.C. § 103(a) as being unpatentable over Coteus et al. (U.S. Patent No. 6,202,110) in view of Wu (U.S. Patent Publication No. 2001/0003198).

In the present Amendment, Applicant has amended the title of the invention as suggested by the Examiner. Applicant has amended the specification and drawings to include the frequency controller recited in claims 2-4 and 6-7. M.P.E.P. § 2163.I.B says, "[t]he claims as filed in the original specification are part of the disclosure and, therefore, if an application as originally filed contains a claim disclosing material not found in the remainder of the specification, the applicant may amend the specification to include the claimed subject matter." Therefore, no new matter has been added. Applicant has amended claim 8 in a non-narrowing manner to improve the form of the claim and has amended claim 12 to correct a grammatical error. Applicant has also amended claims 3 and 6 to more appropriately define the invention. Upon entry of the Amendment, claims 1-12 remain pending.

Applicant submits that the Amendment overcomes the objection to the title of the invention; the objection to the specification as failing to teach or suggest the frequency controller; and the objection to the specification as failing to enable claim 2-3 and 6. For example, the specification teaches that, when "the operating frequency for the on-board type memory module . . . is higher than the operating frequency for the slot-type memory

modules, the operating frequency for the on-board type memory module is set to [be] the lower operating frequency of the slot-type memory modules." (Specification, page 11, lines 8-12.) Therefore, claims 3 and 6 are fully supported by the specification.

Further, according to the specification, when "the operating frequencies of the respective memory modules are not the same," "the lower operating frequency for the memory modules" may be selected, thereby maximizing "the memory capacity by ensuring that all memory modules will function properly." (Specification, page 11, lines 1-14.) Therefore, if the operating frequency of the on-board memory module is lower than the operating frequency of the slot-type memory module, the operating frequency of the on-board memory module may be designated as the operating frequency of the memory system. On the other hand, if "the operating frequency of the on-board type memory module is higher than the operating frequency of the slot-type memory modules, then only the on-board memory module is used." (Specification, page 11, lines 15-17.) Therefore, the original specification teaches, in respective embodiments, designating the operating frequency of the on-board memory module as the operating frequency of the memory system whether the operating frequency of the on-board memory module is higher or lower than the operating frequency of the slot-type memory module. Thus, the recitations of claims 4 and 7 are fully supported by the original specification, and the objection to the specification regarding claims 4 and 7 should be withdrawn.

For the same reasons as set forth above regarding the objections to the specification, the rejection of claims 2-4 and 6-7 under 35 U.S.C. § 112, first paragraph, should be withdrawn.

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Applicant respectfully traverse the rejection of claims 1-12 under 35 U.S.C. § 103(a) as being unpatentable over Coteus et al. in view of Wu, because a *prima facie* case of obviousness has not been established by the Examiner.

To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the reference or references, taken alone or combined, must teach or suggest each and every element recited in the claims. Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of the three requirements must "be found in the prior art, and not be based on applicant's disclosure." See M.P.E.P. §2143, 8th ed., February 2003.

Particularly, claim 1 recites, *inter alia*, "a board including an on-board memory area for installing on-board type memory modules, and a slot-type memory area for installing slot-type memory modules; [and] at least one on-board type memory module installed in the on-board memory area." Coteus et al. fails to teach or suggest at least "an on-board memory area" and "at least one on-board type memory module." Referring to Coteus et al., "[a] number of SIMM (Single In-line Memory Module) or DIMM (Dual In-line Memory Module) devices 31 are mounted on the memory cards 15," wherein "the memory cards 15 are daughter boards mounted back-to-back using a pair of edge connectors 27 and 28 fitting into a pair of connector sockets 29 and 30 as seen in FIGS. 2 and 3." Col. 3, lines 42-49. Clearly, the memory devices 31 of Coteus et al. are not "on-board type memory module[s]," as recited in claim 1. Neither does Coteus et al.'s motherboard 21 include "an on-board memory area," as recited in claim 1. Additionally, since Coteus et al. fails to teach

or suggest "at least one on-board type memory module," it also fails to teach or suggest "a memory controller coupled in series to the on-board memory," as recited in claim 1.

Moreover, Wu only discloses methods of timing setting for a system memory. It also fails to teach or suggest at least "an on-board memory area," "at least one on-board type memory module," or "a memory controller coupled in series to the on-board memory," as recited in claim 1.

Since Coteus et al. in combination with Wu fails to teach or suggest each and every element of claim 1, no *prima facie* case of obviousness has been established. The rejection of claim 1 under 35 U.S.C. § 103(a) based on Coteus et al. and Wu should be withdrawn.

Similarly, claim 9 recites, *inter alia*, "providing an on-board memory area including at least one on-board type memory module, . . . providing a memory controller, coupled in series to the on-board memory" Claim 11 recites, *inter alia*, "[a] method for controlling start-up operation of electronic equipment having an on-board type memory module." Claim 12 recites, *inter alia*, "an on-board type memory module, . . . [and] a memory controller, coupled in series to the on-board type memory module." For reasons already set forth above, Coteus et al. and Wu fail to teach or suggest at least these elements, and no *prima facie* case of obviousness has been established. The rejection of claims 9, 11, and 12 under 35 U.S.C. § 103(a) based on Coteus et al. and Wu should be withdrawn.

Claims 2-8 and 10, which depend from claims 1 and 9, respectively, are also allowable over Coteus et al. in view of Wu, at least because of their dependencies from an allowable base claim.

In view of the foregoing remarks, Applicant respectfully requests the reconsideration and reexamination of this application and the timely allowance of the pending claims 1-12.

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Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: February 12, 2004

By: \_\_\_\_\_

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\*With limited recognition under 37 C.F.R. § 10.9(b).

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